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Part III

Environmental Protection Agency

40 CFR Part 60

Standards of Performance for New Stationary Sources; Sewage Treatment Plants; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL-3222-2]

Standards of Performance for New Stationary Sources; Sewage Treatment Plants

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The EPA proposed revisions to the testing, monitoring, recordkeeping, and reporting requirements associated with the standards of performance for sewage treatment plants on April 18, 1986 (51 FR 13424). These revisions being promulgated leave unchanged the emission limits established in 1974. The revisions require additional performance test measurements as well as monitoring, recording, and reporting of several operating parameters of the control device and the sewage sludge incinerator.

EFFECTIVE DATE: November 7, 1988.

Under section 307(b)(1) of the Clean Air Act, judicial review of the actions taken by this notice is available *only* by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under section 307(b)(2) of the Clean Air Act, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Background Information Document.* The background information document (BID) for the promulgated revisions may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Sewage Treatment Plant NSPS: Responses to Comments on April 1986 Proposed Revisions," EPA-450/3-84-010b. The BID contains (1) a summary of all the public comments made on the proposed revisions and the Administrator's response to the comments, and (2) a summary of the changes made to the proposed revisions.

Docket. A docket, number A-84-03, containing information considered by EPA in development of the promulgated standards, is available for public inspection between 8:00 a.m. and 4:00 p.m., Monday through Friday, at EPA's Central Docket Section (LE-131), South Conference Center, Room 4, 401 M Street SW., Washington, DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Ron Myers, Industrial Studies Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5407.

SUPPLEMENTARY INFORMATION:

Summary of Revisions

The standard limits atmospheric emissions of particulate matter (PM) from sewage sludge incinerators that commenced construction or modification after June 11, 1973. After completion of this review of the existing new source performance standards (NSPS) for sewage treatment plants (40 CFR Part 60, Subpart 0), the Agency decided to leave unchanged the emission limits established in 1974 and previously reviewed in 1978 for control of PM emissions and opacity from sewage sludge incinerators. The standard for particulate emissions is 0.65 kg/Mg of dry sludge input (1.3 lb/ton), with an opacity standard of 20 percent.

The most widely used control technology installed after 1978 is the combination venturi/impingement tray scrubber. This review of the standard did not include any technologies other than venturi/tray scrubbers. Two incinerators with fabric filter control devices are reportedly under construction in California, and several are used in Europe. Under another program, EPA is currently investigating the applicability and effectiveness of fabric filters and other types of control devices. This information will be considered during the next 4-year review of the standard. At the conclusion of that review, the Agency will again determine if this standard should be revised.

Requirements have been added for monitoring, recording, and, under special circumstances, reporting of the operating pressure drop of the scrubber control system and several incinerator operating parameters. A performance test is required with the specified monitoring devices in operation. Requirements have also been added for measurement of metals emissions during this performance test. These requirements apply to all existing and future incinerators subject to the NSPS, except that incinerators for which particulate emissions measured during the most recent performance test are less than or equal to 0.38 g/kg of dry sludge input (0.75 lb/ton) are exempt from certain of the monitoring, recordkeeping, and reporting requirements.

Summary of Impacts of the Revisions

The revisions that impose monitoring, recordkeeping, and reporting requirements are intended to ensure that incinerators and associated control devices continue to be operated and maintained in a manner consistent with the method of operation at the time when compliance was initially established. The addition of continuous monitoring requirements will benefit the environment by assisting owners and operators in proper operation and maintenance of incinerators and emissions control devices. Further, by requiring operators to monitor incinerator operating parameters, the revised standards should aid in reducing consumption of auxiliary fuel. The requirement for plants to conduct a performance test after the required monitoring devices are installed and operating will establish incinerator and control device operating conditions that are consistent with minimizing particulate emissions. Requirements for measurement of metals in sludge and in particulate emissions will assist the Agency in determining whether metals are emitted from sewage sludge incinerators in sufficient quantities to warrant regulation. For facilities that have not implemented the required monitoring practices, the EPA estimates an annual cost of $24,000 per incinerator to achieve compliance with these revisions. The corresponding capital cost for compliance with the revisions is $27,000 per incinerator. These costs include costs for all monitoring and recording instruments, maintenance, recordkeeping, reporting, and laboratory analysis required by the revised regulation. Facilities which qualify for exemption from certain monitoring, recordkeeping, and reporting requirements would incur a maximum annual cost of about $12,000 per incinerator. However, many facilities have already implemented monitoring practices consistent with most or all of the revised NSPS requirements. For these facilities, annual cost per incinerator will be about $5,600 and capital cost per incinerator will be about $8,700.

Public Participation

The revisions were proposed in the **Federal Register** on April 18, 1986 (51 FR 13424). The preamble to the proposed revisions discussed the availability of the review study document, "Second Review of Standards of Performance for Sewage Sludge Incinerators," EPA-450/

3–84–010. Public comments were solicited at the time of proposal, and copies of the review study were distributed to interested parties. There were no requests to speak at the proposed public hearing, and thus, no hearing was held. The initial public comment period was from April 18, 1986, to June 17, 1986. A 1-month extension ending July 17, 1986, was granted at the request of one commenter. A total of nine comment letters were received. The comments have been carefully considered and, where determined to be appropriate by the Administrator, changes have been made in the proposed revisions.

Significant Comments and Changes to the Proposed Revisions

Comments on the proposed revisions were received from five local sewer and sanitary districts, an engineering consulting firm, an environmental group, and a State environmental agency. A detailed discussion of these comments and responses can be found in the promulgation BID, which is referred to in the **ADDRESSES** section of this preamble. The summary of comments and responses in the BID serves as the basis for the changes that have been made to the revised requirements between proposal and promulgation. The major comments and responses (i.e., the comments that resulted in changes to the proposed revisions) are summarized in this preamble. Most of the comment letters contained multiple comments. The comments were divided into the following areas: Monitoring requirements, reporting requirements, performance test requirements, and miscellaneous. Changes to the proposed revisions have been made in response to comments on monitoring and performance test requirements.

Changes to Proposed Monitoring Requirements

In response to the public comments, several changes and clarifications have been made to the proposed monitoring requirements. First, the proposed alternative requirement for plants to monitor incinerator exhaust gas flow rate in lieu of oxygen content of the incinerator exhaust, temperature profile of the incinerator, fuel use, and moisture and volatiles content of the sludge has been withdrawn. Second, the proposed monitoring, recordkeeping, and reporting requirements for incinerator temperature, fuel use, and sludge moisture and volatiles content have been modified to exempt incinerators for which the average particulate emission rate during the most recent performance test was less than or equal to 0.38 g/kg of dry sludge input (0.75 lb/ton). Third, a requirement for incinerators to continuously monitor and record the sludge feed rate to the incinerator has been added; hourly averages of sludge feed rate are to be reported for days when a decrease in scrubber pressure drop or increase in exhaust gas oxygen content is reported. This requirement applies only to incinerators for which the average particulate emission rate during the most recent performance test was greater than 0.38 g/kg of dry sludge input (0.75 lb/ton). Fourth, the specific requirements for locating oxygen monitors have been replaced with a general requirement that monitors be placed upstream of sources of dilution air. Fifth, the number of thermocouples required in multiple hearth incinerators to measure the temperature profile of the incinerator has been reduced from three thermocouples per hearth to one thermocouple per hearth in the cooling and drying zones and at least two thermocouples per hearth in the combustion zone. For electric incinerators, one thermocouple in each of the cooling and drying zones and at least two thermocouples in the combustion zone are required. For fluidized bed incinerators, one thermocouple in the bed and one in the outlet of the incinerator are required.

Three commenters suggested the withdrawal of the alternative to monitor incinerator exhaust flow rate in lieu of exhaust oxygen content. Two of the commenters gave supporting evidence for their conclusion that the measurement of gas flow from the incinerator does not indicate how the incinerator has been operated or how well control equipment has functioned. The first of these commenters provided test data from his facility which showed no correlation between particulate emissions and incinerator exhaust gas flowrate. The second commenter described incinerator operating conditions which could result in elevated particulate emissions within normal incinerator exhaust rates. The third commenter noted that he knew of no accurate and reliable way to measure and continuously record the exhaust gas volumetric flowrate.

Based on review of these comments, EPA now believes that measurement of incinerator exhaust gas alone would be insufficient for detecting all periods of potential increased particulate emissions. To be effective, other incinerator operating parameters would have to be measured such as incinerator temperature, sludge feed rate, and sludge moisture and volatiles content. Requiring these additional monitoring requirements along with the requirement for monitoring exhaust gas flow would negate the intent of providing plants with a less burdensome monitoring alternative. Further, information on incinerator exhaust gas flow alone would provide insufficient data for correlating emission rates with specific incinerator operating parameters. For these reasons, EPA has decided to delete the alternative requirement for measuring incinerator exhaust flow and, except as described below, to require all plants to monitor oxygen content of incinerator exhaust, temperature profile, fuel use, and sludge volatiles and moisture content.

Several commenters questioned the need and basis for the proposed monitoring requirements, stating that the correlation between the control device and incinerator operating parameters and particulate emissions has not been demonstrated. One commenter suggested that EPA require plants to monitor operations only after a site-specific study has been performed to establish such a correlation for each incinerator subject to the standard. Finally, two of the commenters suggested that EPA allow direct measurement of particulate emissions through more frequent performance tests in lieu of the proposed monitoring requirements.

The EPA has been unable to establish a direct quantitative correlation between particulate emissions and scrubber pressure drop that would apply to all incinerators. However, EPA has found that, for a given incinerator, proper operation and maintenance of wet scrubbing control devices is key in minimizing particulate emissions and, further, that the manner in which an incinerator is operated can also affect particulate emissions. For this reason, EPA believes it is reasonable to require monitoring, recordkeeping, and reporting of scrubber pressure drop and certain incinerator operating conditions despite the lack of a direct quantitative correlation between these parameters and particulate emissions. The EPA believes that such a requirement would be less burdensome than requiring all plants to individually conduct studies to establish an incinerator-specific correlation between control device and incinerator operating conditions and particulate emissions. In addition, the suggested alternative to allow more frequent performance tests in lieu of monitoring, recordkeeping, and reporting of control device and incinerator operating parameters is rejected because, although performance tests provide direct emissions measurements,

they represent average performance over a 4 to 5 day period only and may not be representative of the variations in control device and incinerator operating conditions that occur at other times.

After consideration of these comments, EPA continues to believe that monitoring of scrubber pressure drop and other incinerator operating parameters (including incinerator exhaust gas oxygen content, temperature profile, fuel use, and sludge moisture and volatiles content) are reasonable and will be useful to incinerator operators and compliance and enforcement personnel in detecting and analyzing periods of potential excess particulate emissions. However, EPA recognizes that compliance with some of these requirements may not be necessary for all facilities, particularly those from which particulate emissions have been demonstrated to be well below the NSPS limit. Accordingly, EPA has decided to exempt those incinerators with average particulate emissions measurements of less than or equal to 0.38 g/kg of dry sludge input (0.75 lb/ton) from all continuous monitoring, recordkeeping, and reporting requirements except those related to scrubber pressure drop and incinerator exhaust gas oxygen content. All sludge incinerators subject to the NSPS will be required to conduct a performance test following promulgation of these revisions during which all control device and incinerator parameters are monitored. Following the performance test, all facilities will be required to monitor, record, and report scrubber pressure drop and incinerator exhaust gas oxygen content as proposed. However, only those facilities with average particulate emissions measurements exceeding 0.38 g/kg of dry sludge input (0.75 lb/kg) will be required to continuously monitor, record, and report incinerator temperature profile and fuel use, and to perform daily sampling and analysis of sludge moisture and volatiles content. The EPA believes this exemption is reasonable because it will focus the more comprehensive information collection on those facilities which are operating relatively close to the NSPS emission limit. Variations in incinerator operation at these facilities are more likely to result in excess emissions than at facilities where compliance was demonstrated by a wider margin. This exemption is also expected to provide incentive to incinerator owners and operators to evaluate and identify those control device and incinerator operating conditions which ensure low particulate emissions prior to the performance test.

A requirement for continuous monitoring and recording of sludge feed rate was suggested by one commenter to aid in evaluating operation of sewage sludge incinerators. The EPA agrees that information on continuous sludge feed rates would be beneficial to the Agency in evaluating causes for potential periods of increased particulate emissions (as indicated by changes in either scrubber pressure drop or oxygen content). The cost of monitoring and recording sludge feed rates would be minimal since the measuring devices have already been installed in compliance with performance testing requirements of the existing standard. Therefore, EPA is including this requirement in the promulgated standard. The amount of hourly sludge feed, either by mass or volume, will be monitored and recorded on a continuous basis. Reporting of the amount of hourly sludge feed will be only for those periods that must be reported on because of either variations in scrubber pressure drop or changes in exhaust gas oxygen content. This requirement will apply only to incinerators from which particulate emissions are measured to be greater than 0.38 g/kg of dry sludge input (0.75 lb/ton).

Three commenters took issue with the proposed location requirements for oxygen monitors. All three commented that the proposed monitoring locations would present operational problems and described their successful experiences in placing oxygen analyzers at other locations.

The proposed revisions required the following specific locations for monitoring oxygen levels. In multiple-hearth incinerators, oxygen levels would be monitored at the uppermost hearth. For fluidized-bed and other incinerator types, oxygen levels would be measured at any point upstream of the inlet to the emissions control device. These locations were specified to avoid erroneous measurements due to in-leakage of air. As pointed out by one commenter, many multiple-hearth incinerators are designed with the center shaft cooling air by-pass injected downstream of the scrubber (not in the incinerator exhaust), so that effects of this in-leakage can be avoided even if the monitor is placed after the scrubber. Another commenter pointed out that existing oxygen monitors at other locations than the top hearth of multiple-hearth incinerations yield acceptable oxygen measurements since they are upstream of any significant source of air in-leakage. The commenters' facilities already have oxygen monitors which would have to be relocated under the proposed revision.

To avoid unnecessary relocation of existing oxygen monitors, EPA is revising the requirement for oxygen monitors by removing the specific location requirements for multiple-hearth and fluidized-bed incinerators. In its place, a requirement has been added that oxygen monitors be located upstream of significant sources of air dilution including center shaft. cooling air by-pass inlets, fans, and ambient air recirculation dampers.

Four commenters addressed the proposed requirement for monitoring the incinerator operating temperature. Specifically, the commenters questioned the need for three thermocouples per hearth in multiple-hearth incinerators and requested clarification on the requirements for locating the thermocouples and recording the temperatures indicated by the thermocouples.

The EPA agrees with the commenters that only one operating thermocouple is adequate for providing infromation on incinerator temperature trends in the drying and cooling hearths of multiple-hearth incinerators. However, the practice reported by one commenter of operating redundant thermocouples is considered by EPA to be good operating practice in the event that one or more thermocouples become inoperable. In the combustion zone, multiple thermocouples may be necessary to determine representative hearth temperatures due to the larger fluctuation in hearth temperatures (i.e., from startups and shutdowns) and due to fluctuations in temperature within the hearth (i.e., depending on proximity to the burner(s), access hatches, drop holes, etc.). Further, EPA believes it is common industry practice to operate several thermocouples for control purposes in the combustion hearths of multiple-hearth incinerators. For these reasons, EPA is modifying the requirements for monitoring incinerator operating temperatures to require one thermocouple per hearth in the drying and cooling hearths of multiple-hearth incinerators and two or more thermocouples per hearth in the combustion hearths of multiple-hearth incinerators. Similarly, EPA is modifying the requirements for electric and fluidized bed incinerators to require one thermocouple in each of the drying and cooling zones and at least two thermocouples in the combustion zone of electric incinerators and one thermocouple in the bed and outlet of fluidized bed incinerators. However, it should be noted that EPA encourages

the use of redundant instrumentation (i.e., two or more thermocouples) in all incinerator types.

The location of the thermocouples within the incinerator is not specified by EPA. It is intended that facilities utilize currently installed thermocouples to the extent practicable. It is important that thermocouples remain in the same location during normal incineration operation and during the compliance test. This will help ensure against false readings of incinerator temperature trends from changing the location where temperature is monitored compared to changes in actual operating temperatures. The EPA believes it is good practice to locate the thermocouples away from incinerator features such as burners, access hatches, and drop holes to minimize fluctuations in temperature resulting from these features.

When temperature is monitored by more than one thermocouple in a hearth (or zone), facilities should report the average hearth temperature as part of the incinerator temperature profile. It is important that temperatures be reported on the same basis they were recorded during the compliance test.

Changes to Proposed Performance Test Requirements.

In response to public comments concerning the performance test requirements for metals analysis, the performance test requirements for metals analysis have been modified to allow plants to analyze for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc either by atomic absorption or neutron activation. In addition, the regulation has been modified to more clearly indicate that this analysis is a one-time requirement.

Four commenters addressed the proposed requirements for measuring metals during the performance test. One commenter questioned the proposal to test sludge emissions for metals in the absence of standards for metals. Another commenter stated that the testing of these metals during performance tests would be difficult and expensive. This commenter wanted the requirement to be deleted once a correlation between sludge metals concentration and metals emissions has been established. Two commenters addressed the specified test methods on the basis of accuracy, availability, and cost.

In response, EPA notes that the proposal preamble explained that it is EPA's intention to consolidate existing waste management authorities with the broad authorities provided under Section 405 of the Clean Water Act. Section 405(d) of the Clean Water Act requires EPA to develop regulations for the use and disposal of sewage sludge. The measurement of metals will assist the Agency in establishing guidelines for State and local sludge management programs. Also, this will assist the Agency in determining if future regulatory action is warranted.

Additionally, EPA evaluated the expense and difficulty of performing the metals emissions analyses. Since no special emissions testing equipment and procedures would be needed, the added expense is limited to the analytical laboratory cost. Based on contacts with laboratories that perform metal analyses, both atomic absorption and neutron activation methods are comparable in cost. However, very few laboratories are equipped for neutron activation analysis. For this reason, EPA is modifying the requirements for using neutron activation analysis. Since there is not significant difference in the accuracy of the two methods, atomic absorption may be used in the place of neutron activation for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc. The estimated costs to facilities to perform metals analyses on sludge and particulate emission samples collected during performance tests is estimated at $1,200 per test. This cost would only be incurred once per facility.

It is unclear whether the commenter who requested that the requirements for metals analysis be deleted, once a correlation between sludge metals concentrations and metals emissions has been established, was referring to the establishment of a universal correlation that could be applied to all incinerators or whether the commenter was referring to establishment of facility or plant-specific correlations. The emissions of metals are affected by a combination of factors beyond the metals content of the sludge, including the incinerator design, its operating condition, and the particulate emission control system applied. Consequently, it is doubtful whether a universal correlation could be established. However, for a particular system design and method of operation, it would seem reasonable that a facility or site-specific correlation could be established. Regardless, it is not EPA's intention to require each source to perform a metals analysis for every particulate performance test that may be conducted. As stated previously, the proposed regulation has been modified to indicate more clearly that this is a one-time analysis.

Administrative

The docket is an organized and complete file of all the information considered by EPA is the development of this rulemaking. The docket is a dynamic file, since material is added throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can effectively participate in the rulemaking process along with the statement of basis and purpose of the proposed and promulgated standards and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review (section 307(d)(7)(A)).

In accordance with Section 117 of the Act, publication of these promulgated standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

This regulation will be reviewed again 4 years from the date of these revisions as required by the Clean Air Act. This review will include an assessment of such factors as the need for integration with other programs, the existance of alternative methods, enforceability, improvements in emission control technology, and reporting requirements.

Information collection requirements associated with this regulation (those included in 40 CFR Part 60, Subpart A and Subpart O) have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* and have been assigned OMB control number (2060–0035).

Public reporting burden for this collection of information is established to be 7,820 hours per year with an average of 120 hours per response, including time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Reporting burden per response ranges from 60 to 180 hours per response depending on whether a facility is exempt from certain recordkeeping and reporting requirements and whether the reporting trigger has been exceeded. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Chief, Information Policy Branch, PM–223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and

to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

Under Executive Order 12291, EPA is required to judge whether a regulation is a "major rule" and therefore subject to the requirements of a regulatory impact analysis (RIA). The Agency has determined that this regulation would result in none of the adverse economic effects set forth in Section 1 of the Order as grounds for finding a regulation to be a "major rule" because it will not have an annual effect on the economy of $100 million or more, result in a major increase in costs or prices, or have significant adverse effects on competition, employment, investment, productivity, or innovations. The Agency has, therefore, concluded that this regulation is not a "major rule" under Executive Order 12291.

The Regulatory Flexibility Act of 1980 requires the identification of potentially adverse impacts of Federal regulations upon small business entitles. The Act specifically requires the completion of a Regulatory Flexibility Analysis in those instances where small business impacts are possible. Because these revisions impose no adverse economic impacts, a Regulatory Flexibility Analysis has not been conducted.

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that these revisions will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 60

Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements, Incorporation by reference, Sewage treatment plants.

Date: September 26, 1988.

Lee M. Thomas,

Administrator.

For the reasons set forth in the preamble, 40 CFR Part 60 is amended as follows:

PART 60—[AMENDED]

1. The authority citation for Part 60 continues to read as follows:

Authority: Secs. 101, 111, 114, 116, 301, Clean Air Act as amended (42 U.S.C. 7401, 7411, 7414, 7416, 7601).

2. In § 60.153, paragraph (a)(1) is revised and paragraphs (b), (c), (d), and (e) are added to read as follows ((a) introductory text is republished):

§ 60.153 Monitoring of operations.

(a) The owner or operator of any sludge incinerator subject to the provisions of this subpart shall:

(1) Install, calibrate, maintain, and operate a flow measuring device which can be used to determine either the mass or volume of sludge charged to the incinerator. The flow measuring device shall be certified by the manufacturer to have an accuracy of ±5 percent over its operating range. Except as provided in paragraph (d) of this section, the flow measuring device shall be operated continuously and data recorded during all periods of operation of the incinerator.

(2) * * *

(3) * * *

(b) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subpart shall comply with the requirements of paragraph (a) of this section and:

(1) For incinerators equipped with a wet scrubbing device, install, calibrate, maintain and operate a monitoring device that continuously measures and records the pressure drop of the gas flow through the wet scrubbing device. Where a combination of wet scrubbers is used in series, the pressure drop of the gas flow through the combined system shall be continuously monitored. The device used to monitor scrubber pressure drop shall be certified by the manufacturer to be accurate within ±250 pascals (±1 inch water gauge) and shall be calibrated on an annual basis in accordance with the manufacturer's instructions.

(2) Install, calibrate, maintain and operate a monitoring device that continuously measures and records the oxygen content of the incinerator exhaust gas. The oxygen monitor shall be located upstream of any rabble shaft cooling air inlet into the incinerator exhaust gas stream, fan, ambient air recirculation damper, or any other source of dilution air. The oxygen monitoring device shall be certified by the manufacturer to have a relative accuracy of ±5 percent over its operating range and shall be calibrated according to method(s) prescribed by the manufacturer at least once each 24-hour operating period.

(3) Install, calibrate, maintain and operate temperature measuring devices at every hearth in multiple hearth furnaces; in the bed and outlet of fluidized bed incinerators; and in the drying, combustion, and cooling zones of electric incinerators. For multiple hearth furnaces, a minimum of one thermocouple shall be installed in each hearth in the cooling and drying zones, and a minimum of two thermocouples shall be installed in each hearth in the combustion zone. For electric incinerators, a minimum of one thermocouple shall be installed in the drying zone and one in the cooling zone, and a minimum of two thermocouples shall be installed in the combustion zone. Each temperature measuring device shall be certified by the manufacturer to have an accuracy of ±5 percent over its operating range. Except as provided in paragraph (d) of this section, the temperature monitoring devices shall be operated continuously and data recorded during all periods of operation of the incinerator.

(4) Install, calibrate, maintain and operate a device for measuring the fuel flow to the incinerator. The flow measuring device shall be certified by the manufacturer to have an accuracy of ±5 percent over its operating range. Except as provided in paragraph (d) of the section, the fuel flow measuring device shall be operated continuously and data recorded during all periods of operation of the incinerator.

(5) Except as provided in paragraph (d) of this section, collect and analyze a grab sample of the sludge fed to the incinerator once per day. The dry sludge content and the volatile solids content of the sample shall be determined in accordance with the method specified under § 60.154(c)(2), except that the determination of volatile solids, step (3)(b) of the method, may not be deleted.

(c) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subpart shall retain the following information and make it available for inspection by the Administrator for a minimum of 2 years:

(1) For incinerators equipped with a wet scrubbing device, a record of the measured pressure drop of the gas flow through the wet scrubbing device, as required by paragraph (b)(1) of this section.

(2) A record of the measured oxygen content of the incinerator exhaust gas, as required by paragraph (b)(2) of this section.

(3) A record of the rate of sludge charged to the incinerator, the measured temperatures of the incinerator, the fuel flow to the incinerator, and the total solids and volatile solids content of the sludge charged to the incinerator, as required by paragraphs (a)(1), (b)(3), (b)(4), and (b)(5) of this section.

(d) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subpart from which

the particulate matter emission rate measured during the performance test required under § 60.154(d) is less than or equal to 0.38 g/kg of dry sludge input (0.75 lb/ton) shall be required to comply with the requirements in paragraphs (a), (b), and (c) of this section during all periods of this incinerator following the performance test except that:

(1) Continuous operation of the monitoring devices and data recorders in paragraphs (a)(1), (b)(3), and (b)(4) of this section shall not be required.

(2) Daily sampling and analysis of sludge feed in paragraph (b)(5) of this section shall not be required.

(3) Recordkeeping specified in paragraph (c)(3) of this section shall not be required.

(e) The owner or operator of any sludge incinerator other than a multiple hearth, fluidized bed, or electric incinerator or any sludge incinerator equipped with a control device other than a wet scrubber shall submit to the Administrator for approval a plan for monitoring and recording incinerator and control device operation parameters. The plan shall be submitted to the Administrator:

(1) No later than 90 days after October 6, 1988, for sources which have provided notification of commencement of construction prior to October 6, 1988.

(2) No later than 90 days after the notification of commencement of construction, for sources which provide notification of commencement of construction on or after October 6, 1988.

(3) At least 90 days prior to the date on which the new control device becomes operative, for sources switching to a control device other than a wet scrubber.

3. In § 60.154, paragraph (d) is added to read as follows:

§ 60.154 Test methods and procedures.

* * * * *

(d) The owner or operator of any sludge incinerator subject to the provisions of this subpart shall conduct a performance test during which the monitoring and recording devices required under § 60.153 (a)(1), (b)(1), (b)(2), (b)(3), and (b)(4), are installed and operating and for which the sampling and analysis procedures required under § 60.153(b)(5) are performed. The owner or operator shall provide the Administrator at least 30 days prior notice of the performance test to afford the Administrator the opportunity to have an observer present.

(1) For incinerators that commenced construction or modification on or before April 18, 1986, the performance test shall be conducted within 360 days of the effective date of these regulations unless the monitoring and recording devices required under § 60.153 (a)(1), (b)(1), (b)(2), (b)(3), and (b)(4) were installed and operating and the sampling and analysis procedures required under § 60.153 (b)(5) were performed during the most recent performance test and a record of the measurements taken during the performance test is available.

(2) For incinerators that commence construction or modification after April 18, 1986, the date of the performance test shall be determined by the requirements in § 60.8.

(3) For the initial performance test required by paragraph (d) of this section, the three samples collected by Test Method 5 shall be analyzed first for particulate mass and then in one of the following two ways:

(i) Two samples shall be analyzed by neutron activation for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc; and one sample shall be analyzed by atomic absorption for beryllium and lead. The sample analyzed for beryllium and lead shall be analyzed according to Method 104 and Method 12, respectively.

(ii) Three samples shall be analyzed by atomic absorption for arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, and zinc. The samples shall be analyzed for arsenic, beryllium, and lead according to Method 108, Method 104, and Method 12, respectively. The samples shall be analyzed for cadmium, chromium, copper, nickel, selenium, and zinc according to standard analytical procedures as recommended by atomic absorption equipment manufacturers.

(4) During the initial performance test required by paragraph (d) of this section, sludge samples shall be collected for the purpose of determining the metals content of the sludge. Samples shall be collected from the sludge charged to the incinerator at the beginning of each run and at approximately 30 minute intervals thereafter until the test run ends. The sludge samples collected during each test run shall be combined into a single composite sample. During the performance test, three composite samples shall be generated. The composite samples shall be analyzed in one of the following two ways:

(i) The composite samples shall be analyzed for arsenic, cadmium, chromium, copper, nickel, selenium, and zinc by neutron activation procedures, and for beryllium and lead by atomic absorption according to Method 104 and Method 12, respectively.

(ii) The composite samples shall be analyzed by atomic absorption for arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, and zinc. The samples shall be analyzed for arsenic, beryllium, and lead according to Method 108, Method 104, and Method 12, respectively. The samples shall be analyzed for cadmium, chromium, copper, nickel, selenium, and zinc according to standard analytical procedures as recommended by atomic absorption equipment manufacturers.

(5) The requirements of paragraphs (d)(3) and (d)(4) of this section shall apply only during the first performance test required pursuant to these regulations.

4. Add § 60.155 as follows:

§ 60.155 Reporting.

(a) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator subject to the provisions of this subpart shall submit to the Administrator semi-annually a report in writing which contains the following:

(1) A record of average scrubber pressure drop measurements for each period of 15 minutes duration or more during which the pressure drop of the scrubber was less than, by a percentage specified below, the average scrubber pressure drop measured during the most recent performance test. The percent reduction in scrubber pressure drop for which a report is required shall be determined as follows:

(i) For incinerators that achieved an average particulate matter emission rate of 0.38 kg/Mg (0.75 lb/ton) dry sludge input or less during the most recent performance test, a scrubber pressure drop reduction of more than 30 percent from the average scrubber pressure drop recorded during the most recent performance test shall be reported.

(ii) For incinerators that achieved an average particulate matter emission rate of greater than 0.38 kg/Mg (0.75 lb/ton) dry sludge input during the most recent performance test, a percent reduction in pressure drop greater than that calculated according to the following equation shall be reported:

$$P = -111E + 72.15$$

where P = Percent reduction in pressure drop, and

E = Average particulate matter emissions (kg/megagram)

(2) A record of average oxygen content in the incinerator exhaust gas for each period of 1-hour duration or more that the oxygen content of the incinerator exhaust gas exceeds the average oxygen content measured during the most recent performance test by more than 3 percent.

(b) The owner or operator of any multiple hearth, fluidized bed, or electric sludge incinerator from which the

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average particulate matter emission rate measured during the performance test required under § 60.154(d) exceeds 0.38 g/kg of dry sludge input (0.75 lb/ton of dry sludge input) shall include in the report for each calendar day that a decrease in scrubber pressure drop or increase in oxygen content of exhaust gas is reported a record of the following:

(1) Scrubber pressure drop averaged over each 1-hour incinerator operating period.

(2) Oxygen content in the incinerator exhaust averaged over each 1-hour incinerator operating period.

(3) Temperatures of every hearth in multiple hearth incinerators; of the bed and outlet of fluidized bed incinerators; and of the drying, combustion, and cooling zones of electric incinerators averaged over each 1-hour incinerator operating period.

(4) Rate of sludge charged to the incinerator averaged over each 1-hour incinerator operating period.

(5) Incinerator fuel use averaged over each 8-hour incinerator operating period.

(6) Moisture and volatile solids content of the daily grab sample of sludge charged to the incinerator.

(c) The owner or operator of any sludge incinerator other than a multiple hearth, fluidized bed, or electric incinerator or any sludge incinerator equipped with a control device other than a wet scrubber shall include in the semi-annual report a record of control device operation measurements, as specified in the plan approved under § 60.153(e).

5. Add § 60.156, Delegation of Authority, as follows:

§ 60.156 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States: § 60.153(e).

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